Commercial Space Transportation



SPECIAL EDITION

February 5, 2009

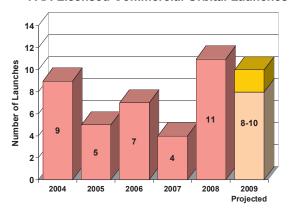
ELEVEN FAA-LICENSED ORBITAL LAUNCHES AND FIVE PERMITTED FLIGHTS IN 2008

In 2008 the Federal Aviation Administration's Office of Commercial Space Transportation (FAA/AST) licensed 11 orbital launches valued at approximately \$640 million. Ten of the launches were successful and one launch failed. These launches include:

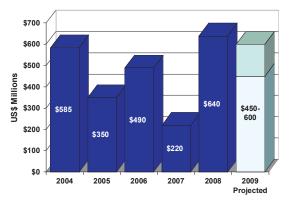
- Five Zenit-3SL launches carrying five commercial payloads to geosynchronous orbit (GSO);
- Two Delta II launches of remote sensing payloads to low Earth orbit (LEO);
- Two Falcon 1 launches of demonstration payloads to LEO, one of which failed;
- One Atlas V launch of a commercial payload to GSO; and
- One FAA-licensed Pegasus XL launch of a government payload to LEO.

Five flights under FAA experimental permits were conducted in 2008, compared to nine in 2007.

FAA-Licensed Commercial Orbital Launches

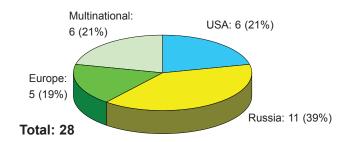


FAA-Licensed Commercial Orbital Launch Revenues



WORLDWIDE ORBITAL COMMERCIAL LAUNCH MARKET SHARE FOR 2008

Russia led the market with 11 launches in 2008, a 39 percent market share. This was a slight decrease compared to the 12 launches that took place in 2007. Europe's share decreased from 26 percent in 2007 to 19 percent in 2008, similar to its percentage in 2005 and 2006. The United States' share increased from 13 to 21 percent between 2007 and 2008. Sea Launch returned to flight in 2008, conducting five launches and also debuted the Land Launch system for a total 21 percent market share.



FIVE-YEAR ORBITAL COMMERCIAL LAUNCH TRENDS WORLDWIDE

Twenty-eight commercial orbital launches occurred in 2008, which is above the average number of 21 launches per year for the past five years. Non-geosynchronous orbit (NGSO) launches worldwide remained strong, but launches to geosynchronus orbit recovered in 2008 and outpaced NGSO launches 18 to 10. During the 2004-2008 period, there was an average of over 15 commercial launches per year to GSO and an average of 6 per year to NGSO.

FAA-LICENSED VEHICLES LAUNCHED IN 2008

		Multinational			
			A seemed		SEA LAUNCH
Vehicle	Delta II	Pegasus XL	Falcon 1	Atlas V	Zenit-3SL
2008 Total Launches	5	2	2	2	5
2008 Licensed Launches	2	1	2	1	5
Launch Reliability (2008)	5/5 (100%)	2/2 (100%)	1/2 (50%)	2/2 (100%)	5/5 (100%)
Launch Reliability (Last 10 Years)	62/62 (100%)	13/13 (100%)	1/4 (25%)	14/14 (100%)	28/30 (93%)
LEO kg (lbs)	6,100 (13,440)	443 (977)	454 (1,000)	20,520 (45,240)	15,246 (33,541)
GTO kg (lbs)	2,170 (4,790)			8,670 (19,110)	6,100 (13,440)



WORLDWIDE COMMERCIAL LAUNCH EVENTS IN 2008

Date Vehicle Site Payload(s) Operator Manufacturer Use Use United States	LN
4/14/2008 V Allas V 421 Cape Canaveral V CO G1 (CNOFS U.S. Air Force V Pegasus XL Megalain Island V Falcon 1 Kwajalain Island Nanosai-D Protos M Salas V Falcon 1 Kwajalain Island Nanosai-D D Revelopment Nanosai-D D Revelopment Nanosai-D D Revelopment Nanosai-D D Revelopment Nanosai-D NasA NaSA NaSA NaSA NaSA NaSA NaSA NaSA NaS	<u>, </u>
Arribage V Pegasus XL Kwajalein Island Signate Signate V Falcon 1 Kwajalein Island Signate V PRESat NASA NAS	S S
Part	S
Jumpstart Nanosair ORS Office SpaceDev, Inc. Development Nanosair Nasa Nasa Scientific Scie	F
PRESat P	F
9/20/2008 V Delta II 7420-10 Vandenberg Cosmo-Skymed 3 Italian Space Exploration Technologies Space Exploration Development 10/24/2008 V Delta II 7420-10 Vandenberg Cosmo-Skymed 3 Italian Space Agency (ASI) Aleinal Spazio Remote Sensiny Development 10/24/2008 V Delta II 7420-10 Vandenberg Cosmo-Skymed 3 Italian Space Agency (ASI) Aleinal Spazio Remote Sensiny Cosmo-Skymed 3 Italian Space Agency (ASI) Aleinal Spazio Remote Sensiny Remote Sensiny Cosmo-Skymed 3 Italian Space Agency (ASI) Aleinal Spazio Remote Sensiny Remote Sensiny Cosmo-Skymed 3 Italian Space Agency (ASI) Aleinal Spazio Remote Sensiny Remote Sensin	F I
9/28/2008 V Falcon 1 Kwajalein Island * Flight 4 Cosmo-Skymed 3 Italian Space Exploration Technologies Space Exploration Development 10/24/2008 V Delta II 74/20-10 Vandenberg Cosmo-Skymed 3 Italian Space Agency (ASI) Aleria Spazio Remote Sensing Europe 4/18/2008 Ariane 5 ECA Kourou Skynet S Vinasast	F
Europe E	S S
Europe 4/18/2008	S S
Ariane 5 ECA Kourou Star One C2 Vinasat Vietnamese Ministry of Post and Lockheed Martin Corp. Communication Communication Communication Communication Communication Start Communication Start Communications Ltd. Alcatel Alenia Space Communication Start Communications Ltd. Alcatel Alenia Space Communication Space Systems/Loral Communication Space Communication Space Communication Space Systems/Loral Communication Space Communication Space Systems/Loral Communication Space Communication Space Communication Space Systems/Loral Communication	S :
Vinasat Vietnamese Ministry of Post and Lockheed Martin Corp. Communications Telecommunications Communications Commun	
Telecommunications	S
6/12/2008	S S
7/7/2008	S S
Turkisat 3A	3 (
Protostar 1	s s
Sylate Communications Corp. Alicate Alic	
12/20/2008	S S
Russia 2/11/2008	S
Russia 2/11/2008	s s
Proton M	S
Proton M Baikonur * Thor 5 Telenor A.S. Orbital Sciences Corp. Communication Communications Communications SES Americom Lockheed Martin Communications Communications Communicati	S
SES Americom Lockheed Martin Communications Communications Corp. Communications Cor	
SAR Lupe 4 German Defense Ministry Orbital Communications Corp. Orbital Communication	S
SAR Lupe 4 Orbcomm Replacement 1 Orbcomm Replacement 2 Orbcomm Replacement 3 Orbcomm Replacement 3 Orbcomm Replacement 3 Orbcomm Replacement 4 Orbcomm Replacement 5 Orbcomm Replacement 6 Orbcomm Replacement 7 Orbcomm Replacement 8 Orbcomm Replacement 9 Orbital Communications Corp. ORBCOMM) Orbital Communications Corp. ORB System Orbital Communications Corp. ORBCOMM) Orbital Communications Corp. ORBCOMM) Orbital Communications Corp. ORB System Orbital Communications Corp. ORBCOMM) Orbital Communications Corp. ORBCOMM) Orbital Communications Corp. ORB System Orbital Communications Corp. ORBCOMM) Orbital Communica	F
6/19/2008 Kosmos 3M Kapustin Yar * Orbcomm Replacement 1	0
Replacement 1 Orbcomm Replacement 3 Orbital Communications Corp. ORBCOMM) Orbital Communications Corp. ORBCO	SS
Orbital Communications Corp. OHB System (Communications Corp. ORBCOMM) Orbital Communications Corp. OHB System (Communications Corp. OHB System (Communications Corp. OHB System (Communications Corp. OHB System (Communications Corp. ORBCOMM) Orbital Communications Corp. OHB System (Communications Corp. ORBCOMM) UGATUSAT UGATUSAT UGATUSAT UGATUSAT UGATU Scientific Intelligence Inmarsat EADS Astrium Remote Sensing Associates RapidEye AG MacDonald, Dettwiler and Associates RapidEye AG MacDonald, Dettwiler and Associates Remote Sensing Rem	3 (
* Orbcomm Replacement 3 Orbital Communications Corp. OHB System (ORBCOMM) Orbital Communications	s s
Replacement 3 Orbcomm Replacement 4 Orbcomm Replacement 5 Orbcomm CDS 3 Orbital Communications Corp. ORBCOMM) UGATU Scientific Intelligence Inmarsat EADS Astrium Remote Sensing Associates RapidEye AG MacDonald, Dettwiler and Associates RapidEye AG MacDonald, Dettwiler and Associates Remote Sensing Remote	s s
* Orbcomm Replacement 4 * Orbcomm Replacement 5 * Orbcomm CDS 3 * Orbital Communications Corp. (ORBCOMM) * Orbital Communications Corp. (ORBCOMM) * UGATU * OHB System * Obytele Orbital Communications Corp. (ORBCOMM) * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * UGATU * OHB System * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * Orbital Communications Corp. (ORBCOMM) * UGATU * UGATU * UGATU * Orbital Communications Corp. (ORBCOMM) * Orbital Communications Corp. (ORBCOMM) * UGATU *	•
* Orbcomm Replacement 5	s s
* Orbcomm CDS 3 Orbital Communications Corp. (ORB System (ORBCOMM) UGATU UGATU UGATU Scientific Intelligence Communication Remote Sensing Associates RapidEye 1 RapidEye AG MacDonald, Dettwiler and Associates Remote Sensing Associates Remote Sensing Associates Remote Sensing Remote Sensing Remote Sensing Remote Sensing Associates Remote Sensing Remote Sensing Associates Remote Sensing Associates Remote Sensing Associates Remote Sensing Rem	s s
Vicario Vica	s s
8/19/2008 Proton M Baikonur * Inmarsat-4 F3 Inmarsat EADS Astrium Communication 8/29/2008 Dnepr 1 Baikonur * RapidEye 1 RapidEye AG MacDonald, Dettwiler and Associates Remote Sensing MacDonald, Dettwiler and Associates Proton M Baikonur * Nimiq 4 Telesat Canada EADS Astrium Communication Toffice Agis Astrium Communication Remote Sensing MacDonald, Dettwiler and Associates Remote Sensing MacDonald, Dettwiler and	s s
8/29/2008 Dnepr 1 Baikonur * RapidEye 1 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 2 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 3 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 4 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 4 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 4 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 5 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye AG MacDonald, Dettwiler and Ass	SS
Remote Sensing Associates Associates Remote Sensing Associates Associates Remote Sensing Associates Associates Associates Associates Remote Sensing Associates	S :
* RapidEye 2 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 3 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 4 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 4 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 5 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 5 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 5 RapidEye AG MacDonald, Dettwiler and Remote Sensing * Proton M Baikonur * Nimiq 4 Telesat Canada EADS Astrium Communication * Telesat Canada EADS Astrium Remote Sensing * Telesat Canada EADS Astrium Remote Sensing	S S
* RapidEye 3 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 4 RapidEye AG MacDonald, Dettwiler and Associates MacDonald, Dettwiler and Remote Sensing Associates * RapidEye AG MacDonald, Dettwiler and Associates MacDonald, Dettwiler and Remote Sensing Associates * RapidEye AG MacDonald, Dettwiler and Associates MacDonald, Dettwiler and Remote Sensing Theorem 1 Proton M Baikonur Nimiq 4 Telesat Canada EADS Astrium Communication 10/1/2008 Dnepr 1 Dombarovskiy THEOS GISTDA EADS Astrium Remote Sensing	s s
* RapidEye 4 RapidEye AG MacDonald, Dettwiler and Associates * RapidEye 5 RapidEye AG MacDonald, Dettwiler and Associates 9/20/2008 Proton M Baikonur * Nimiq 4 Telesat Canada EADS Astrium Communication 10/1/2008 Dnepr 1 Dombarovskiy THEOS GISTDA EADS Astrium Remote Sensing	s s
* RapidEye 5 RapidEye AG MacDonald, Dettwiler and Remote Sensing 9/20/2008 Proton M Baikonur Nimiq 4 Telesat Canada EADS Astrium Communication 10/1/2008 Dnepr 1 Dombarovskiy THEOS GISTDA EADS Astrium Remote Sensing	s s
9/20/2008 Proton M Baikonur Nimiq 4 Telesat Canada EADS Astrium Communication 10/1/2008 Dnepr 1 Dombarovskiy THEOS GISTDA EADS Astrium Remote Sensing	s s
10/1/2008 Dnepr 1 Dombarovskiy THEOS GISTDA EADS Astrium Remote Sensins	S
	S
	S :
12/10/2008 Proton M Baikonur * Ciel 2 Ciel Satellite Thales Alenia Space Communication	S
Multinational	
1/15/2008 V Zenit 3SL Odyssey * Thuraya 3 Thuraya Satellite Boeing Satellite Systems Communication: Communications Company	S S
3/19/2008 V Zenit 3SL Odyssey * DirecTV 11 DirecTV, Inc. Boeing Satellite Systems Communication	S
4/28/2008 Zenit 3SLB Baikonur * Amos 3 SpaceCom Limited Israel Aerospace Industries Communication	S
5/21/2008 V Zenit 3SL Odyssey Launch Platform Space Systems/Loral Communication	S
7/15/2008 V Zenit 3SL Odyssey * Echostar XI Echostar Communications Space Systems/Loral Communications Computing Computing Computing Communications	S S
9/24/2008 V Zenit 3SL Odyssey * Galaxy 19 Intelsat Space Systems/Loral Communication:	S S

- * Denotes a commercial payload, defined as a spacecraft which serves a commercial function or is operated by a commercial entity.
- √ Denotes a commercial launch licensed by the Federal Aviation Administration's Office of Commercial Space Transportation (FAA/AST).
 L Denotes launch outcome (S-success, F-failure, and P-partial).
 M denotes mission outcome (S-success, F-failure, and P-partial).

2008 FAA EXPERIMENTAL PERMIT FLIGHT ACTIVITY

Date	Operator	Vehicle	Site
October 24	TrueZer0	Ignignokt	Las Cruces International Airport, NM
October 24	Armadillo Aerospace	MOD 1	Las Cruces International Airport, NM
October 24	Armadillo Aerospace	MOD 1	Las Cruces International Airport, NM
October 24	Armadillo Aerospace	MOD 1	Las Cruces International Airport, NM
October 25	Armadillo Aerospace	Pixel	Las Cruces International Airport, NM